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EXAMINER

ROY, BAISAKHI

ART UNIT PAPER NUMBER

3737

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/029,595

Applicant(s)

GOVARI, ASSAF

Examiner

Baisakhi Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/04, 12/03, 9/03, 6/02, 5/02, 2/02
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

**DETAILED ACTION*****Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: numbers or reference characters 54, 56, 58, 98, 100-103, 162, 172, 192, 196, 202, 206, 212, and 216 found in figures 3A, 3B, 4, 5, 9A, and 9B are not mentioned in the description. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Marked-up Drawings" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d). Failure to timely

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submit the proposed drawing and marked-up copy will result in the abandonment of the application.

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 14, and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6373240. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-19 of ('240) clearly anticipate claims 1, 14, and 19 of the application. Claims 1-19 of ('240) disclose an apparatus and method for tracking an object with a component for generating an electromagnetic field, a transducer fixed to the object vibrating at a vibrational frequency, one or more detectors located around the object to detect energy emitted by the transducer and generate signals in response, and a signal processor which receives and processes the detector signals to determine coordinates of the object as stated in claims 1, 14, and 19 of the application. The

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patented claims further address more specific components of said object tracking assembly and method, which is not disclosed in claims 1, 14, and 19 of the application. Claims 1, 14, and 19 offer a broader interpretation of the above-described apparatus and method and therefore claims 1-19 of ('240) clearly anticipate claims 1, 14, and 19 of the application.

3. Claims 1, 7, 14, and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6223066. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-19 of ('066) clearly anticipate claims 1, 7, 14, and 19 of the application. Claims 1-19 of ('066) disclose an apparatus and method for determining the position of an object with an electromagnetic field generator, a magnetic-field responsive element which vibrates at a predetermined frequency, detectors which detect a modulation of the electromagnetic field in response to the vibration of the transducer, and a signal processing unit which receives and processes the detector signals to determine the position of the object as stated in claims 1, 7, 14, and 19 of the application. The patented claims further address more specific components of said object position locator device and method, which is not disclosed in claims 1, 7, 14, and 19 of the application. Claims 1, 7, 14, and 19 of the application present a broader interpretation of the above-described apparatus and method and therefore claims 1-19 of ('066) clearly anticipate claims 1, 7, 14, and 19 of the application.

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4. Claims 1, 12-14, 19, 28, and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 13 of U.S. Patent No. 6788967. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 and 13 of ('967) clearly anticipate claims 1, 12-14, 19, 28, and 29 of the application. Claims 1 and 13 of ('967) disclose an apparatus and method for determining the position of an object with an electromagnetic field generator, a magnetic-field responsive element which vibrates at a predetermined frequency, detectors which detect the energy emitted by the transducer and generate signals in response to the vibration of the transducer, and a signal processing unit which receives and processes the detector signals to determine the position of the object as stated in claims 1, 14, and 19 of the application. The patented claims 1 and 13 further address the apparatus and method to include an invasive medical instrument comprising a probe and having a physiological sensor attached to said probe to determine the coordinates of the instruments inside the body of a subject as stated in claims 12, 13, 28, and 29 of the application. More specific components of said object position locator device and method are addressed by the patented claims, which is not disclosed in claims 1, 12-14, 19, 28, and 29 of the application. Claims 1, 12-14, 19, 28, and 29 of the application present a broader interpretation of the above-described apparatus and method and therefore claims 1 and 13 of ('967) clearly anticipate claims 1, 12-14, 19, 28, and 29 of the application.

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5. Claims 19, 28, and 29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6332089. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-30 of ('089) clearly anticipate claims 19, 28, and 29 of the application. Claims 1-30 of ('089) disclose a method for determining the position of an object with an electromagnetic field generator, a magnetic-field responsive element which vibrates at a predetermined frequency, detecting the energy emitted by the transducer and generating signals in response to the vibration of the transducer, and processing the detector signals to determine the position of the object as stated in claim 19 of the application. The patented claims 1-30 further address the method of determining the disposition of an object by determining the disposition of an invasive medical instrument with a physiological sensor attached to said instrument to determine the coordinates of the instruments inside the body of a subject as stated in claims 28 and 29 of the application. More specific components of said object position locator method are addressed by the patented claims, which are not disclosed in claims 19, 28, and 29 of the application. Claims 19, 28, and 29 of the application present a broader interpretation of the above-described apparatus and method and therefore claims 1-30 of ('089) clearly anticipate claims 19, 28, and 29 of the application.

6. Applicant is advised that should claims 1, 2, and 3 be found allowable, claims 14, 16, and 17 will be objected to respectively, under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are

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duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2, 7, 12-16, 19, 28, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Lockhart et al. (6226547).



Regarding claims 1, 7, 14, 15, and 19, Lockhart et al. discloses a system and method for determining the disposition of an object relative to a reference frame with said system comprising of an electromagnetic field generator, a transducer fixed to the object emitting acoustic energy irrespective of any acoustic irradiation of the object, vibrating at a predetermined vibrational frequency, one or more detectors situated at known locations in the reference frame to detect energy emitted by the transducer and generate signals in response, detect modulation of the electromagnetic field in response to vibration of the transducer, and a signal processor which receives and processes the detector signals to determine coordinates of the object (abstract, col. 2 lines 37-67, col. 3 lines 1-10 lines 51-67, col. 4 lines 27-49, col. 5 lines 13-19, and claims 1-3, 5-7).

Regarding claims 2 and 16, Lockhart et al. teaches said apparatus and method to include fixing transducers to objects and arranged substantially independently or without connection (col. 2 lines 37-55, col. 3 lines 1-6 lines 59-65).

Regarding claims 12, 13, 28, and 29, Lockhart et al. further teaches said method and system involving an invasive medical instrument or a probe having a physiological sensor fixed distally to the probe and in proximity to a transducer and a signal processor to determine the coordinates of the instrument inside the body of the subject (col. 2 lines 33-65, col. 3 lines 7-10, col. 4 lines 5-17, and claims 1-3, 5-7).

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3. Claims 1, 3-12, 14, 15, and 17-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Willis et al. (6490474).

Regarding claims 1, 7, 9, 12, 14, 15, 19, and 24, Willis et al. discloses a system and method for determining the disposition of an invasive object relative to a reference frame with said system comprising of an electromagnetic field generator, a transducer fixed to the object emitting acoustic energy irrespective of any acoustic irradiation of the object, vibrating at a predetermined vibrational frequency, one or more detectors comprise a plurality of ultrasound detectors situated at known locations in the reference frame to detect modulation of the energy emitted by the one or more transducers and generate signals in response, and a signal processor which receives and processes the detector signals to determine coordinates of the object (abstract, col. 2 lines 16-41, col. 5 lines 1-26, col. 6 lines 61-65, col. 8 lines 16-29, col. 13 lines 47-52, col. 19 lines 58-63, col. 21 lines 38-41, and claims 1-83).

Regarding claims 3, 17, 18, 20, and 26, Willis et al. further teaches processing the detector signals to determine a time of flight of acoustic energy to each of the known locations of the ultrasound radiation from the transducer to one or more detectors and where the time of flight comprises a time interval between an initiation of the electromagnetic field by one field generator to an initial detection of the acoustic energy by the detectors to determine the distance of the transducer from a known point in the reference frame (col. 5 lines 27-61, col. 6 lines 21-47).

Regarding claims 4, 5, 21, and 22, Willis et al. teaches a method and system as described above being composed of a transducer comprised of two or more transducers which vibrate at different respective frequencies and where the signal processor processes the detector signals responsive to the different frequencies (col. 5 lines 17-19 lines 62-67, col. 6 lines 10-20, col. 7 lines 39-45, col. 9 lines 18-24, col. 10 lines 38-41, and col. 11 lines 1-4). Willis et al. further teaches a method and system where the signal processor determines the distance from one fixed point to two or more transducers in order to determine the angular orientation of the object (abstract, col. 2 lines 16-41, col. 5 lines 27-36 lines 43-50, col. 6 lines 10-20, and claims 1-83).

Regarding claims 6 and 23, Willis et al. teaches a system and method as described above with ultrasound generators emitting ultrasound at frequencies similar to the resonant frequency of the transducer (col. 7 lines 37-38, col. 9 lines 22-24).

Regarding claims 8, 10, 11, 25, and 27, Willis et al. teaches an apparatus and method where the field generator comprises of one or more radio frequency (RF) field generators and where the transducers vibrate and emit ultrasound radiation in response to the RF field, providing spatial positioning information from a patient's body with a plurality of transducers having different respective frequencies and RF field generators generating fields at different frequencies of the transducers (col. 10 lines 38-41, col. 12 lines 46-67, and col. 22 lines 14-43).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 6, 17, 18, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockhart et al. in view of Willis et al.

Regarding claims 3, 17, 18, and 20, Lockhart et al. does not explicitly teach processing the detector signals to determine a time of flight of acoustic energy. Willis et al. discloses a method and system for determining the disposition of an object relative to a reference frame by using an ultrasound target transducer to track an object, detectors to receive ultrasound signals, and a processor for receiving and processing the detector signals to determine the coordinates of the object (abstract, col. 2 lines 16-41, and claims 1-83). Willis et al. further teaches processing the detector signals to determine a time of flight of acoustic energy from the transducer to one or more detectors and where the time of flight comprises a time interval between an initiation of the electromagnetic field by one field generator to an initial detection of the acoustic energy by the detectors (col. 5 lines 27-61, col. 6 lines 21-47). It would have therefore been obvious to one of ordinary skill in the art to use the time of flight teaching by Willis et al. in the teaching by Lockhart et al. for the purpose of determining the distance of the transducer from a known point in the reference frame.

Regarding claims 6 and 23, Lockhart et al. does not explicitly teach ultrasound generators emitting ultrasound at frequencies similar to the frequency of the transducer. Willis et al. teaches a system and method as described above with ultrasound generators emitting ultrasound at frequencies similar to the resonant frequency of the transducer (col. 7 lines 37-38, col. 9 lines 22-24). It would have therefore been obvious to one of ordinary skill in the art to use the similar frequency teaching by Willis et al. in the teaching by Lockhart et al. for the purpose of inducing the transducer to vibrate.

6. Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockhart et al. in view of Willis et al. as set forth above and further in view of Dumoulin et al. (5437277). Lockhart et al. and Willis et al. discloses an apparatus and method to determine the disposition of an object by determining the time of flight of acoustic energy for the purpose of determining the distance of the transducer from a known point in the reference frame, as described above, with the transducers vibrating and emitting ultrasound radiation in response to the field generators, but does not disclose said field generator to be comprised of one or more radio frequency (RF) field generators. Dumoulin et al. discloses an apparatus and method of determining the disposition of an object relative to a reference frame using RF field generators (abstract, col. 2 lines 43-47, col. 3 lines 57-65, and claims 1, 10). It would have therefore been obvious to one of ordinary skill in the art to use the RF field generator teaching by Dumoulin et al. in the teaching by Lockhart et al. and Willis et al. for the purpose of creating

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an RF field and allowing the transducers to vibrate and emit ultrasound radiation in response to said field.

7. Claims 8, 10, 11, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockhart et al. in view of Willis et al. as set forth above and further in view of Doron et al. (6239724). Lockhart et al. and Willis et al. discloses an apparatus and method to determine the disposition of an object by determining the time of flight of acoustic energy, as described above, with the transducers placed in different angular orientations relative to the object possessing different respective frequencies, vibrating and emitting ultrasound radiation in response to the field generators, but does not disclose said field generator to be comprised of one or more radio frequency (RF) field generators. Doron et al. (6239724) discloses a system and method for providing spatial positioning information from a patient's body with a plurality of transducers having different respective frequencies and RF field generators generating fields at different frequencies of the transducers (abstract, claims 1-43). It would have therefore been obvious to one of ordinary skill in the art to use the RF field generator teaching by Doron et al. in the teaching by Lockhart et al. and Willis et al. for the purpose of generating RF fields at different respective frequencies corresponding to the different frequencies of the transducers.

8. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willis et al. in view of Dumoulin et al. Willis et al. does not explicitly disclose said object tracking apparatus to not include any wired connection to the transducer. Dumoulin et al. discloses an object-tracking device

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where direct contact between the device and the tracking system is not necessary (col. 2 lines 43-68). It would have therefore been obvious to one of ordinary skill in the art to use the wireless system teaching by Dumoulin et al. in the teaching by Willis et al. for the purpose of creating a wireless tag without any internal power source and is actuated by an external energy field.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baisakhi Roy whose telephone number is 571-272-7139. The examiner can normally be reached on M-F (7:30 a.m. - 4p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B.R.  
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